



## RECRUIT A POST-DOCTORAL FELLOW

The **Université de Technologie de Compiègne** recruits a post doctoral fellowc within the framework of the project FRIXORG within **Laboratoire Roberval** (UMR CNRS 7337) and the **Laboratoire de BioMécanique et BioIngénierie** (UMR CNRS 7338)

The FRIXORG project concerns the development of a new method of characterization of the nanomechanical properties of organic thin films in liquid environment by using a new Atomic Force Microscopy mode called circular mode. This mode allows to couple a characterization of the quasi--statics mechanical properties in compression (what is usually made) with a characterization of the dynamic mechanical properties in friction (what is new). This mode was recently developed and successfully used in the air for studies on the friction between stiff solid surfaces. Preliminary results in liquid environment and on samples of soft maters showed that it was possible to obtain extremely interesting information allowing characterizing the lateral nano-mechanical behavior (viscoelasticity, friction, etc.) of organic thin films. This technique is thus extremely innovative and relevant because there is a lack of reliable methods of characterization of these properties on structures of nanometric dimensions. The project consists in using this mode in liquid environment on organic samples layers to extract from these experiments the maximum of information on the nano-mechanical properties of the tested structures. The final goal being to bring quantitative information on the nano-mechanical properties of this organic layers for applications so varied as the study of the tribological behavior (organic lubricants) or the therapeutic diagnosis (nano-mechanical characterization of cartilages for example). The contractual researcher will have to realize the following tasks: optimization of the instrumentation, Preparation of the organic layers, Preparation of the lipid layer, Measurement with the AFM circular mode, Extraction of mechanical data with data processing routines.

Expressions of interest with attached detailed CV should be addressed to P.-E. Mazeran and K. El Kirat. A digital specific application dedicated to this position will be open soon. For any additional information: F. Dhuicque: (33) 344 234 326, D. Delliaux: (33) 344 237 969, Département des Ressources Humaines - Pole Recrutement – Université de Technologie de Compiègne.

**Fixed-term contract** (12 months renewable once)

**Date of recruitment:** September 1st, 2015

**Monthly gross salary:** Approx. 2500€

**Formation and required skills:** PhD in mechanics or biomechanics, physical chemistry, knowledge of Atomic Force Microscopy, Data processing with Matlab or equivalent.

### Contacts

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